

MYCOTAXON

<http://dx.doi.org/10.5248/130.717>

Volume 130, pp. 717–720

July–September 2015

New records of smut fungi. 9. A second locality of *Anthracoidea andina*

CVETOMIR M. DENCHEV¹*, HARRIE J.M. SIPMAN² & TEODOR T. DENCHEV¹¹*Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences,
2 Gagarin St., 1113 Sofia, Bulgaria*²*Botanic Garden & Botanical Museum Berlin-Dahlem, Free University of Berlin,
6–8 Königin-Luise-St., D-14195 Berlin, Germany** CORRESPONDENCE TO: cmdenchev@yahoo.co.uk

ABSTRACT — *Anthracoidea andina*, known only from the type collection in the Argentine part of Tierra del Fuego, is reported from a new locality in Chilean Tierra del Fuego.

KEY WORDS — *Anthracoideaceae*, Chile, *Cyperaceae*, *Schoenus andinus*, taxonomy, *Ustilaginomycetes*

Introduction

There are two species of *Anthracoidea* on *Schoenus*: *A. schoenus* (G. Cunn.) Vánky on *Schoenus antarcticus* (Hook. f.) Dusén, *S. maschalinus* Roem. & Schult., and *S. pauciflorus* (Hook. f.) Hook. f., reported from South America (Chile) and New Zealand (Vánky & Websdane 1995, Vánky & McKenzie 2002, Vánky 2011), and *Anthracoidea andina* on *Schoenus andinus* (Phil.) H. Pfeiff. (Roivainen 1977, Vánky 2011). *Anthracoidea andina* is known only from the type collection (Roivainen 1977, Vánky 2011).

We report here a new record of *Anthracoidea andina* from Chilean Tierra del Fuego. The collection on which this record is based was obtained during a visit to the herbarium at the Botanic Garden and Botanical Museum Berlin-Dahlem (B).

Material & methods

A dried specimen from the herbarium of the Botanic Garden and Botanical Museum Berlin-Dahlem was examined under light microscope (LM) and scanning electron microscope (SEM). For LM observations and measurements, spores were mounted in lactoglycerol solution (w : la : gl = 1 : 1 : 2) on glass slides, gently heated to boiling point

to rehydrate the spores, and then cooled. The spore measurements are given in the form: min–max (mean $\pm$ 1 standard deviation). For SEM, spores were attached to specimen holders by double-sided adhesive tape and sputter coated with gold. The surface structure of spores was observed and photographed at 10 kV accelerating voltage using a JEOL SM-6390 scanning electron microscope. The height of warts was measured in SEM. The type of spore ornamentation is in accordance with Denchev et al. (2013). The description given below is based entirely on the specimen examined.

Taxonomy

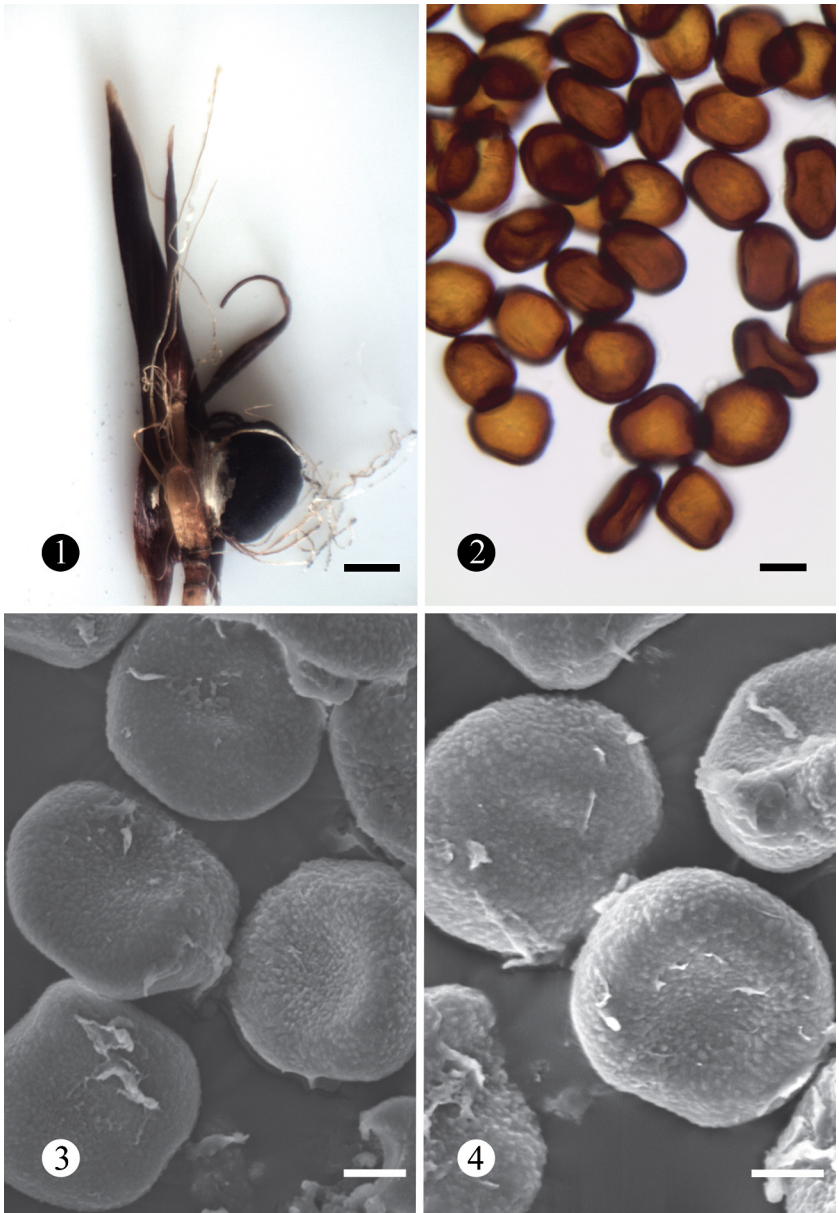
Anthracoidea andina (Kukkonen) Vánky, Mycotaxon 56: 219, 1995. FIGS 1–4

SORI in ovaries, scattered in the inflorescence, as broadly ellipsoidal to ovoid, black, hard bodies, up to 2.5 mm long, when young covered by a thin membrane, later becoming exposed; spore mass of the mature sori powdery on the surface. SPORES flattened, in plane view slightly irregular, suborbicular, broadly elliptical or oval in outline, occasionally small protuberances present, in plane view (15.5–)16.5–23(–24.5) $\times$ (14.5–)15.5–20.5(–21.5) ($19.6 \pm 1.5 \times 17.7 \pm 1.2$) μm ($n = 100$), in side view 9–13 μm thick, dark reddish brown, wall slightly uneven, 1.0–2.2(–2.8) μm thick, light refractive areas and internal swellings absent, in LM minutely verruculose, spore profile not affected or nearly so. In SEM minutely verruculose, warts 0.1–0.3 μm high, often fused in small groups or short rows. SPORE GERMINATION unknown.

SPECIMEN EXAMINED — On *Schoenus andinus* (det. G. Kükenthal): CHILE, PROVINCIA DE TIERRA DEL FUEGO, Rio Fontaine, 1 March 1908, leg. C. Scottsberg, no. 195 (B 10 0506615).

COMMENTS — *Schoenus andinus* is distributed in Chile and Argentina – in central Chile and Patagonia, including Tierra del Fuego and Cape Horn Archipelago. The distribution of *Anthracoidea andina* is restricted to Tierra del Fuego. This species has been previously known only from the type locality (Argentine Tierra del Fuego, south of Fagnano Lake, Lago Escondido, Cerro Garibaldi, alt. 390 m, 3 Dec. 1969, H. Roivainen 721b). The present record is based on an infected plant specimen from the Chilean Tierra del Fuego, collected near Fontaine River (which flows into Almirantazgo Fjord), during Scottsberg's Expedition in Patagonia (cf. Scottsberg 1911: 44).

In both sites where *Anthracoidea andina* occurs, its host, *Schoenus andinus*, grows in wetlands, mostly occupied by peat-forming plant communities, which are threatened by human impact (peat mining, urban development, road construction, recreational activities, and overgrazing) and the invasion of the Canadian beaver. *Anthracoidea andina* is preliminarily assessed as a Near Threatened species and submitted for inclusion in the IUCN Red List (Denchev & Denchev 2015).



FIGS 1–4. *Anthracoida andina* on *Schoenus andinus*. 1. Habit. 2. Spores in LM. 3, 4. Spores in SEM. Scale bars: 1 = 1 mm; 2 = 10 μ m; 3, 4 = 5 μ m.

The other *Anthracoidea* species on *Schoenus*, *A. schoenus*, differs from *A. andina* by a thicker wall (1–4 µm) with light refractive areas and internal swellings.

Acknowledgements

This research received support from the SYNTHESYS Project <http://www.synthesys.info/> and financed by European Community Research Infrastructure Action under the FP7 “Capacities” Program. The authors also gratefully acknowledge Dr Kálmán Vánky (Herbarium *Ustilaginales* Vánky, Tübingen, Germany) and Dr Roger G. Shivas (Department of Agriculture and Fisheries, Queensland, Australia) for critically reading the manuscript and serving as pre-submission reviewers.

Literature cited

- Denchev CM, Denchev TT. 2015. *Anthracoidea andina* (Kukkonen) Vánky. In: The Global Fungal Red List Initiative. http://iucn.ekoo.se/iucn/species_view/412475/
- Denchev TT, Denchev CM, Michikawa M, Kakishima M. 2013. The genus *Anthracoidea* (*Anthracoideaceae*) in Japan and some adjacent regions. *Mycobiota* 2: 1–125. <http://dx.doi.org/10.12664/mycobiota.2013.02.01>
- Roivainen H. 1977. Resultados micológicos de la expedición a Argentina y Chile en 1969–1970. *Karstenia* 17: 1–18.
- Scottsberg C. 1911. The wilds of Patagonia. A narrative of the Swedish Expedition to Patagonia, Tierra del Fuego, and the Falkland Islands in 1907–1909. The Macmillan Company, New York & Edward Arnold, London.
- Vánky K. 2011 [“2012”]. *Smut fungi of the world*. APS Press, St. Paul, Minnesota, USA.
- Vánky K, McKenzie EHC. 2002. *Smut fungi of New Zealand*. *Fungi of New Zealand*. Vol. 2. Fungal Diversity Press, Hong Kong.
- Vánky K, Websdane K. 1995. *Ustilaginales of Schoenus (Cyperaceae)*. *Mycotaxon* 56: 217–229.